

CLAIMS

1. A method for improving video picture processing according to a known scheme,
wherein the scheme includes $n \times m$ intra-block prediction with a prediction direction, where n and m are integers greater than 1,
wherein the intra-block prediction mode selected in the coding of a block is indicated in the coded bit stream;
wherein the video pictures are acquired, coded, transmitted, decoded, and displayed;
the method comprising:
processing the video pictures according to the known scheme;
identifying the prediction mode for an $n \times m$ block being processed;
if the prediction mode has a prediction direction and the prediction direction is a “second quadrant direction” or a “fourth quadrant direction,” then processing the block through a filter, and
continuing processing the video pictures.
2. The method in Claim 1, wherein the processing the block through a filter is after the block being decoded according to the selected prediction mode and before the block being displayed.
3. The method in Claim 2, wherein the filter is a one-dimensional horizontal filter.
4. The method in Claim 3, wherein the filter is an l -tap FIR filter.
5. The method in Claim 4, wherein the l -tap FIR filter is a $[1/4, 1/2, 1/4]$ FIR filter.
6. The method in Claim 2, wherein the filter is a one-dimensional vertical filter.
7. The method in Claim 2, wherein the filter is a two-dimensional filter.

8. The method in Claim 1, wherein the known scheme includes a decoding process in compliance with H.264.
9. The method in Claim 8, wherein the prediction direction is one of the directions of mode 3, mode 7 or mode 8 of the intra-block prediction modes of H.264.
10. The method in Claim 9, wherein the $n \times m$ block is the 4x4 block.
11. The method in Claim 10, wherein processing the block through a filter is after the block is decoded according to the selected prediction mode.
12. The method in Claim 11, wherein the filter is a one-dimensional horizontal filter.
13. The method in Claim 12, wherein the filter is a 3-tap $[1/4, 1/2, 1/4]$ FIR filter.
14. The method in Claim 11, wherein the filter is a one-dimensional vertical filter.
15. The method in Claim 11, wherein the filter is a two-dimensional filter.
16. The method in Claim 10, further comprising:
processing the 16x16 macroblock through the filter, wherein the 4x4 block is a portion of the 16x16 macroblock.
17. A method for improving video picture processing according to a known scheme,
wherein the scheme includes $n \times m$ intra-block prediction with a prediction direction, where n and m are integers greater than 1,
wherein the intra-block prediction mode selected in the coding of a block is indicated in the coded video pictures;
wherein the video pictures are acquired, coded, transmitted, decoded, and displayed;
the method comprising:

processing the video pictures according to the known scheme;
identifying the quantization parameter;
identifying the prediction mode for an $n \times m$ block being processed;
if the quantization parameter is above a threshold, the prediction mode has a prediction direction and the prediction direction is a “second quadrant direction” or a “fourth quadrant direction,” then processing the block through a filter, and
continuing processing the video pictures.

18. The method in Claim 17, wherein the processing the block through a filter is after the block being decoded according to the selected prediction mode and before the block being displayed.

19. The method in Claim 18, wherein the filter is a one-dimensional horizontal filter.

20. The method in Claim 19, wherein the filter is an l -tap FIR filter.

21. The method in Claim 20, wherein the l -tap FIR filter is a 3-tap $[1/4, 1/2, 1/4]$ FIR filter.

22. The method in Claim 18, wherein the filter is a one-dimensional vertical filter.

23. The method in Claim 18, wherein the filter is a two-dimensional filter.

24. The method in Claim 17, wherein the known scheme includes a decoding process in compliance with H.264.

25. The method in Claim 24, wherein the prediction direction is one of the directions of mode 3, mode 7 or mode 8 of the intra-block prediction modes of H.264.

26. The method in Claim 25, wherein the threshold is between 20 and 35.

27. The method in Claim 26, wherein the $n \times m$ block is the 4×4 block.

28. The method in Claim 27, wherein the processing the block through a filter is after the block being decoded according to the selected prediction mode.
29. The method in Claim 28, wherein the filter is a one-dimensional horizontal filter.
30. The method in Claim 29, wherein the filter is a 3-tap $[1/4, 1/2, 1/4]$ FIR filter.
31. The method in Claim 28, wherein the filter is a one-dimensional vertical filter.
32. The method in Claim 28, wherein the filter is a two-dimensional filter.
33. The method in Claim 27, further comprising:
processing the 16x16 macroblock through the filter, wherein the 4x4 block is a portion of the 16x16 macroblock.
34. A method for improving video picture processing according to a known scheme,
wherein the scheme includes $n \times m$ intra-block prediction with a prediction direction, where n and m are integers greater than 1,
wherein the intra-block prediction mode selected in the coding of a block is indicated in the coded bit stream;
wherein the video pictures are acquired, coded, transmitted, decoded, and displayed;
the method comprising:
filtering the video pictures with a filter, wherein the filter is operative to smooth the edges of objects in the pictures, wherein the edges having an orientation in a second quadrant direction or a fourth quadrant direction;
wherein the filter is operative to leave all other areas of the picture unaffected;
encoding the video pictures according to the known scheme; and
generating bit stream.

35. The method in Claim 34, wherein the known scheme includes a decoding process in compliance with H.264.

36. A video picture sequence produced by a codec process in compliance with H.264, wherein the decoding process includes intra-block prediction decoding, and an additional filtering process, the picture sequence comprising:

- a plurality of frames of pictures;

- an object having an edge oriented in a second quadrant direction or a fourth quadrant direction, wherein the edge moves from frame to frame;

- wherein the vicinity of the edge is substantially free of sparkle pixels.

37. The video picture of Claim 36,

- wherein the vicinity of the edge is the area within 4 pixels horizontally away from the edge on either sides of the edge.

38. A video picture produced by the method in any one of claims 1-17 and 34.

49. A computer system comprising:

- a central processing unit,

- a memory module;

- wherein the central processing unit is operative to perform the method in any one of claims 1-17 and 34.

40. A computer readable medium containing computer executable program operative to perform the method in any one of claims 1-17 and 34.